Length 4; width 2.5; alt. 1.25 mm.

Type.—No. 361553, U. S. National Museum. Paratypes in Coll. Walker (no. 77863).

This species differs from the preceding in its smaller size, oval shape and obtuse apex and these features serve to distinguish it from any of the other described species.

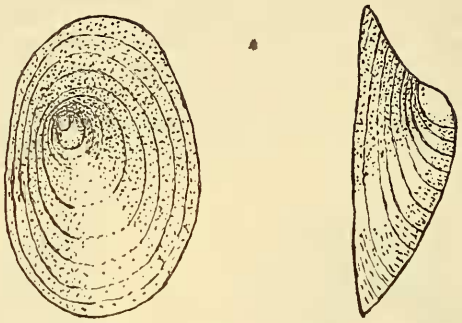

Fig. 2.—*Ferrissia occidentalis*, much enlarged.

ENTOMOLOGY.—*The American Species of Thaumalidae (Orphnephilidae) (Diptera)*. HARRISON G. DYAR and RAYMOND C. SHANNON, U. S. National Museum (Communicated by S. A. ROHWER).

The Thaumalidae are a small group of obscure little flies, usually found in hilly, heavily wooded country around the moss-covered banks of very shallow streams and springs. They have been very rarely collected in North America, our previous records being confined to New York State only.

In 1913 Bezzi pointed out[1] that the single known American species of this family, which had previously been considered conspecific with the European *Orphnephila testacea* Ruthé (See L. G. Saunders[2]), was distinct, and for it proposed the name *Thaumalea americana*. Several additional American species are at present represented in the collection of the U. S. National Museum.

The family Thaumalidae holds a unique place in the classification of the nematocerous Diptera. Its exact position is uncertain, because of a number of peculiar structural characters.

The wing venation according to the Comstock-Needham system is as follows: The costa continues around the wing to its tip, where it is

[1] Boll. Lab. Zool. R. Scuola d'Agr. Portici **7**: 227–266. 1913.

[2] Ann. Mag. Nat. Hist. ser. 9, **11**: 631–640. 1923.

much weaker beyond R_{4+5} (third longitudinal); the subcosta is usually weak, sometimes evanescing before its tip; the Sc-R cross-vein is placed at about the middle of the subcostal; R_1 joint costal beyond middle of wing; the radial sector forks about opposite the tip of subcostal; with branch R_{4+5} forking a short distance beyond; R_2 joins R_1 a short distance beyond the fork of R_{4+5} and appears as a cross-vein, thus making a small first R_1 cell; R_3 and R_{4+5} are nearly parallel and extend to tip of wing; R-M cross-vein is near the base of the forking of R_{4+5}; the media is reduced to a single branch; M-Cu cross-vein present, making a second basal cell; Cu_1 and Cu_2 both present; anal vein absent.

The antenna has been somewhat indefinitely described. It consists of a scape, pedicel, and flagellum, the latter being very compact and arista-like, but composed of ten distinct joints, the basal two rather large and globose.

A peculiar phenomenon occurs in the males of several of the families of Nematocera. Shortly after the emergence of the adult, the tip of the abdomen beyond the seventh segment undergoes a rotation through an angle of 180°. The Thaumalidae, however, do not undergo this change, as is evidenced by the ventral position of the side-pieces and claspers.

The adults, furthermore, present a very unusual condition by lacking spiracles in the second and third abdominal segments.

KEY TO AMERICAN SPECIES OF THAUMALEA

Subcostal vein of wing obsolete on its apical part.....1. *pluvialis*, n. sp.
Subcostal vein distinct apically where it joins costa.
Darkly colored species, the mesonotum dark brown; abdomen and pleurae nearly black.
Male clasper with two terminal claws; terminal abdominal hairs long; tenth sternites parallel sided.....2. *americana* Bezzi.
Male clasper with about six terminal claws; terminal abdominal hairs shorter and spine-like; tenth sternites spatulate at tip.....3. *johannis*, n. sp.
Pale colored species, the mesonotum and pleurae light testaceous; abdomen brown.....4. *elnora*, n. sp.

1. **Thaumalea pluvialis**, new species.

A dark brown medium sized species. Mesonotum thickly clothed with very small hairs; margin of scutellum with several rows of minute setae. Legs dark brown. Wings strongly infuscated; in addition to the usual villae, clothed with numerous hair-like setulae. Subcosta faint beyond Sc-R cross vein, its apex entirely evanescent; R_2 about five times its length distant from base of fork of R_{4+5}; R_3 slightly curved, nearly parallel with R_{4+5}. Halteres and abdomen dark brown. Length 2.5 mm.

Male hypopygium. Ninth segment convex and chitinized dorsally, not enclosing the side-pieces, which fit in beneath it. Side piece ovate, a little longer than wide, the tip notched for the reception of the clasper; many spiny

setae at the tip. Clasper slender, parallel sided, a little swollen in the middle, with about 14 terminal claws and three stout spines, the latter inserted in an oblique row on the outer fourth of the clasper. A triangular weakly chitinized piece at base of side piece and not as long as its width may represent the tenth sternites.

Types, two males, no. 27460, U. S. Nat. Mus.; Prince Rupert, British Columbia, Canada, June 17, 1919 (*H. G. Dyar*).

2. **Thaumalea americana** Bezzi.

Male hypopygium. Ninth segment covering the hypopygium, the paired flaps beyond it with long setae. Side piece conical, as broad as long, strong excavate at tip for the insertion of the clasper, with coarse hairs outwardly and beneath. Clasper short, tapering, with two terminal claws. Tenth sternites with triangular base, curved, parallel-sided and rounded tips.

Our localities for this species are as follows:

New York: Ithaca, August 30, 1901 (*O. A. Johannsen*).

Pennsylvania: Pequea, August 31, 1924 (*R. C. Shannon*).

West Virginia: Cheat Mountain Cave, File Creek (*D. H. Clemons*).

3. **Thaumalea johannis,** new species.

Rather small dark brown species with smoky wings. Last two palpal joints slightly shorter than flagellum. Scutellum with a single row of marginal setae. Legs dark brown. Subcosta complete, joining costa just before base of Rs. R_2 placed about four times its length from base of fork of radius sector. R_3 gently and evenly curved, its tip approaching R_{4+5}. Cu_2 gently curved forwards. Wings with villae only. Halteres and abdomen dark brown.

Male hypopygium. Ninth segment broad, covering the hypopygium, the paired flaps beyond it with short spine-like setae. Side piece conical, as broad as long, strongly excavate at tip for insertion of clasper, with coarse hairs outwardly and beneath. Clasper short, tapering, hairy, with about six terminal claws. Tenth sternites with triangular base, oblique, distinctly constricted before the tips.

Types, two males, no. 27461, U. S. Nat. Mus.; Cabin John, Maryland, March 24, 1915, April 14, 1916 (*R. C. Shannon*).

4. **Thaumalea elnora,** new species.

Entirely yellow, except for reddish brown abdomen. Last two palpal joints noticeably longer than flagellum. Scutellum with two irregular rows of setae. Sc-R cross vein before the middle of humeral cross-vein and tip of subcosta; subcosta ending beyond base of radial sector; R_2 about twice its length from base of R_{4+5}; R_3 rather strongly bowed and approaching tip of R_{4+5}; M-Cu cross-vein opposite base of Rs, two and a half times as long as R-M cross-vein. Wing faintly smoky. Halteres and cerci of female bright yellow.

Male hypopygium. Ninth segment broad, slightly more heavily chitinized than the preceding ones, the pair of flaps beyond it (tenth tergites) finely setose. Side piece conical, about as long as broad, sparsely and coarsely setose. Clasper conical, setose, with two claws at tip. Tenth sternites with triangular base, curved, long, thickened at tip and recurved in a hook.

Types, male and female, no. 27462, U. S. Nat. Mus.; Moscow Mountain, Idaho, July 25, 1920 (*R. C. Shannon*). Dr. A. L. Melander was the first to discover the habitat of this species.

It gives us pleasure to name this species for Miss Elnora M. Sutherlin.